WA 6819
7/25/05
SF

The Boeing Company
P.O. Box 3707
Seattle, WA 98124-2207

7/21/2005
E-1370-05-RR-055

Mr. Dan Duncan
PCB Coordinator
Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

BOEING

Subject: PCB Contamination in North Boeing Field Catch Basin

Dear Mr. Duncan:

As agreed in our July 1, 2005 conversation, this summary report is submitted to detail the actions taken to address PCB contaminated solids discovered in Catch Basin (CB) # 416 at the Boeing North Boeing Field (NBF) facility. Additionally, this correspondence serves as follow up to our initial verbal notification to EPA on June 3rd, and follow up conversation on June 13, 2005. The following describes the actions taken to address the PCB contamination found and further investigate potential PCB contamination extent.

In late May 2005, PCB sampling was conducted at select catch basins (10) at the NBF facility shown to have elevated levels of PCBs at one time in the past. The sampling was conducted as prelude to planned catch basin maintenance cleaning. Of the 10 catch basins sampled, only one (CB # 416) returned a value of concern at 50 ppm (see attached data sheet Sample ID # 416, date sampled 5/13/05). All other catch basin analysis for PCBs was less the 50 ppm. Upon receipt of analytical data, EPA was notified by phone on June 3rd and June 13th as stated above. Details reported to EPA included the plan to sample the immediate up-gradient and down-gradient catch basins relative to CB # 416 to determine the potential extent of PCB contamination. Additionally, EPA was informed of our intent to immediately clean out CB # 416 by Vacuum Truck.

During the week of June 6th, CB # 416 was re-sampled, and, up-gradient and down-gradient catch basins Nos. 415, 418 and 419 were sampled as well (see attached data sheets ARI Job: ID06). The results for all four catch basins sampled on June 6th were less than 50 ppm. Sample results and storm sewer system configuration are shown on the attached illustration.

On Friday, June 10th, CB # 416 was vacuumed and rinsed clean of solids as committed to EPA, as well as up-gradient and down-gradient CBs # 415, 418 and 419. Approximately one half cubic foot of solids was removed from each catch basin. Waste generated from cleaning of the four catch basins was containerized with subsequent separation of the liquid and solids. The liquids were sampled and discharged to sanitary sewer after verified to be under discharge permit limits.

7/21/2005
E-1370-05-RR-055

The solids will be sent for disposal to Chemical Waste Management in Arlington, Oregon.

I hope the information above provides you with the detail of your interest. Should you have any additional questions, please don't hesitate to call.

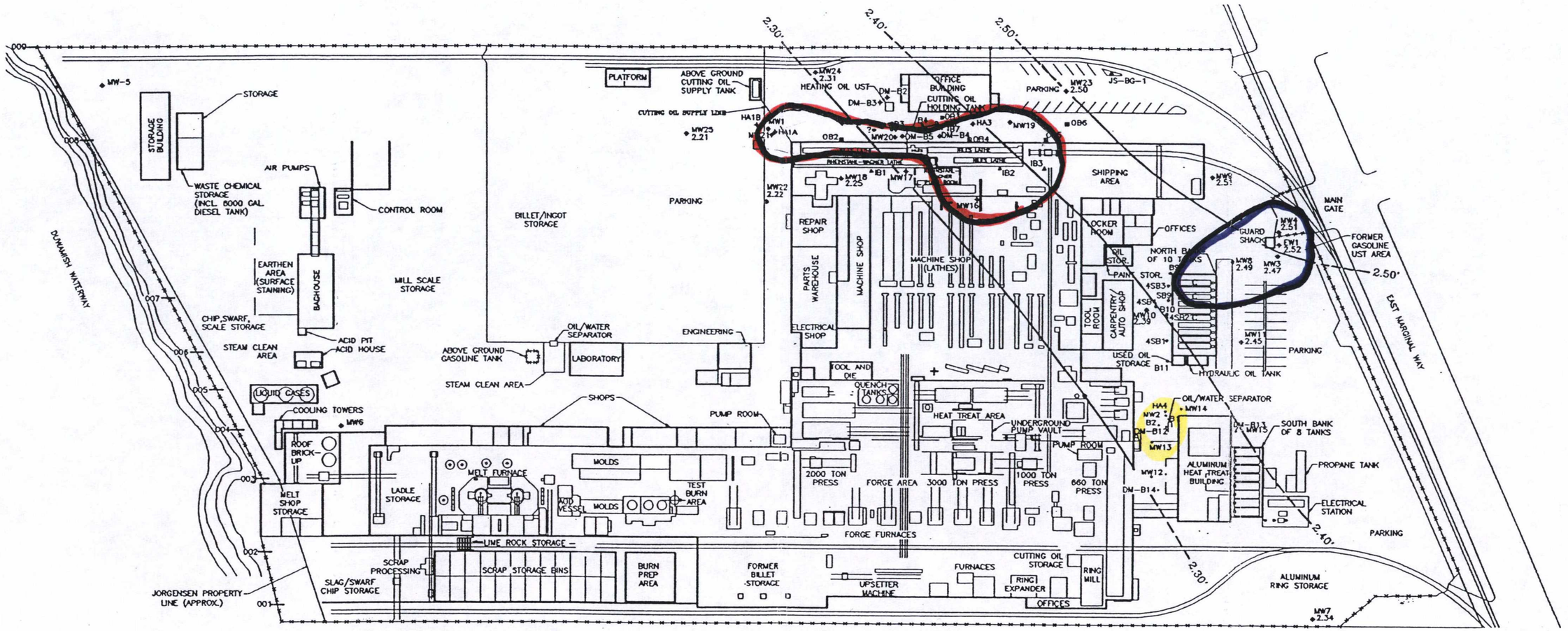
Sincerely,

BOEING

Rudolph Rogers Jr.
Environmental Engineer
737 Programs
E-1370, M/C 63-13
(425) 234-8248

Enclosures:

Plume Locations.



LEGEND

- 009 — OUTFALL
- C — CLOSED TANK (IN-PLACE)
- Q — FORMER UNDERGROUND QUENCH TANK
- PIPE TRENCH
- IDENTIFIED AREA OF CONCERN
- WATER LEVEL ELEVATION 10/1/92 AND 10/2/92
- ESTIMATED EXTENT OF LNAPL 10/1/92 AND 10/2/92
- MW24 ◆ 2.31 — MONITORING WELL AND GROUNDWATER ELEVATION IN NAPL-FREE WELLS

- LNAPL Plume (Area 2) in groundwater
- Gasoline affected groundwater (Area 3)

SOURCE: Earle M. Jorgensen Company, 1/18/82
Aerial Photograph, 1/5/91

Elevations are NGVD mean low tide by Meriwether Leachman

N

0 120 240

SCALE (FEET)

SEACOR

DWN CC
APPR
DATE 2-10-93
JOB# 00075-018-01

FIGURE 5
GROUNDWATER ELEVATION CONTOURS AND LNAPL EXTENT
FORGE FACILITY
SEATTLE, WASHINGTON

DISK 0064 FILE JOR1811A

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 416
DILUTION

Lab Sample ID: IB24I
LIMS ID: 05-8403
Matrix: Solid
Data Release Authorized:
Reported: 05/27/05

QC Report No: IB24-The Boeing Company
Project: NBF/May 2005 Catch Basins

Date Sampled: 05/13/05
Date Received: 05/13/05

Date Extracted: 05/20/05
Date Analyzed: 05/26/05 23:47
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.40 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 10.0
Silica Gel: No
pH: 6.0
Percent Moisture: 80.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10,000	< 10,000 U
53469-21-9	Aroclor 1242	10,000	< 10,000 U
12672-29-6	Aroclor 1248	10,000	< 10,000 U
11097-69-1	**Aroclor 1254**	**10,000**	**50,000**
11096-82-5	Aroclor 1260	10,000	< 10,000 U
11104-28-2	Aroclor 1221	10,000	< 10,000 U
11141-16-5	Aroclor 1232	10,000	< 10,000 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	168%
Tetrachlorometaxylene	92.5%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

June 17, 2005

Joe Kalmar
Landau Associates, Inc.
130 Second Ave
Edmonds, WA 98020

RE: Project: North Boeing Field Source Evaluation/June 2006 (025082.093.091)
ARI Job: ID06

Dear Joe:

Please find enclosed a faxed copy of the chain of custody (COC) records and analytical results for the above referenced project. Analytical Resources, Inc. accepted four solid/aqueous samples in good condition on June 6, 2005. The samples were received at a cooler temperature of 16.5°C.

The samples were analyzed for PCB, as requested on the COC.

Please refer to the case narrative for anomalies associated with these samples.

Quality control analysis results are included for your review. Copies of the reports and all associated raw data will be kept on file electronically at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,
ANALYTICAL RESOURCES, INC

Stephanie Lucas
Project Manager
(206) 695-6213
steph@arilabs.com

Enclosures

cc: Carl Bach, The Boeing Company, P.O. Box 3707, M/S 1W-12, Seattle, WA 98124-2207

☒ Seattle (Edmonds) (425) 778-0907
☐ Tacoma (253) 926-2493
☐ Spokane (509) 327-9737
☐ Portland (Tigard) (503) 443-6010
☐ ____

LANDAU ASSOCIATES

ID06

16.5°

Date 6/6/05
Page 1 of 1

Chain-of-Custody Record

Project Name: North Boeing Field Source Evaluation
Project No.: 025082.093.091
Project Location/Event: North Boeing Field / June 2006
Sampler's Name: Erik Gerking
Project Contact: Joe Kalmar
Send Results To: Joe Kalmar

Turnaround Time: ☒ Standard ☐ Accelerated ☐ ____

Testing Parameters: PCBs

Sample I.D.	Date	Time	Matrix	No. of Containers	PCBs											
415	6/6/05	0715	Solid	1	X											
416	6/6/05	0730	↓	1	X											
418	6/6/05	0745	↓	1	X											
419	6/6/05	0800	↓	2	X											

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to ____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freese upon receipt

___ Dissolved metal water samples field filtered

Other ____

Special Shipment/Handling or Storage Requirements: Store @ 4°C

Method of Shipment:

Relinquished by	Received by	Relinquished by	Received by
Signature: Erik R. Ger[illegible]	Signature: [illegible]	Signature:	Signature:
Printed Name: Erik Gerking	Printed Name: Bryan R. Buggey	Printed Name:	Printed Name:
Company: LAI	Company: ARI	Company:	Company:
Date: 6-6-05 Time: 1515	Date: 6-6-05 Time: 1515	Date: Time:	Date: Time:

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative
Project: Boeing NBF /May 2005 Catch Basins
ARI Job No.: ID06
June 17, 2005

PCB by Method 8082

All samples were screened prior to extraction on 6/10/05. The samples were analyzed on 6/13/05 and 6/14/05 within the method recommended holding time.

Surrogates: All surrogate recoveries were in control.

Method Blank: The method blank was free of analytes of interest.

Samples: Any samples containing water were decanted and the remaining solid volume was extracted and analyzed. The extractions laboratory benchsheets and analysts notes have been included for your review.

Sample **416** contained Aroclor 1254 at an "E" flag concentration. The "E" indicates an estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte. The sample was diluted 3X and re-analyzed. Aroclor 1260 is "Y" flagged in the initial analysis. The "Y" indicates the analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

Aroclors 1016, 1242, 1248 and 1232 are "Y" flagged in sample **415**. The "Y" indicates the analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

Sample **419** contained Aroclor 1254 at an "E" flag concentration. The "E" indicates an estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte. The sample was diluted 3X and re-analyzed. Aroclor 1260 is "Y" flagged in the initial analysis. The "Y" indicates the analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

There were no other anomalies associated with these samples.

Matrix Spikes: A matrix spike and a matrix spike duplicate were performed in association with sample **419.** Aroclor 1254 is "EP" flagged in the MS and MSD. The "P" indicates the analyte was detected on both chromatographic columns but the quantified values differ by $\geq$ 40% RPD with no obvious chromatographic interference. The "E" indicates an estimated concentration calculated for an analyte response above the valid instrument calibration range. Dilutions were not performed on MS/MSD samples.

All percent spike recoveries and RPDs were within compliance.

LCS (s): All percent recoveries were within compliance.

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SEDIMENTS SURROGATE RECOVERY SUMMARY

Matrix: Solid

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091

Client ID	DCBP	TCMX	TOT OUT
MB-061005	82.5%	82.0%	0
LCS-061005	83.8%	91.5%	0
415	102%	95.5%	0
416	97.2%	91.0%	0
416 DL	87.0%	87.0%	0
418	100%	94.8%	0
419	112%	99.8%	0
419 DL	113%	104%	0
419 MS	92.8%	85.5%	0
419 MSD	99.0%	91.5%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(49-140)	(30-164)
(TCMX) = Tetrachlorometaxylene	(30-135)	(26-143)

Prep Method: SW3550B
Log Number Range: 05-9388 to 05-9391

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-061005
METHOD BLANK

Lab Sample ID: MB-061005
LIMS ID: 05-9388
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: NA
Date Received: NA

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 20:42
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.0 g
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	33	< 33 U
53469-21-9	Aroclor 1242	33	< 33 U
12672-29-6	Aroclor 1248	33	< 33 U
11097-69-1	Aroclor 1254	33	< 33 U
11096-82-5	Aroclor 1260	33	< 33 U
11104-28-2	Aroclor 1221	33	< 33 U
11141-16-5	Aroclor 1232	33	< 33 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	82.5%
Tetrachlorometaxylene	82.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 415
SAMPLE

Lab Sample ID: ID06A
LIMS ID: 05-9388
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 21:16
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.21 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.1
Percent Moisture: 80.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	3,800	< 3,800 Y
53469-21-9	Aroclor 1242	3,800	< 3,800 Y
12672-29-6	Aroclor 1248	3,800	< 3,800 Y
11097-69-1	**Aroclor 1254**	**1,900**	**13,000**
11096-82-5	Aroclor 1260	1,900	< 1,900 U
11104-28-2	Aroclor 1221	1,900	< 1,900 U
11141-16-5	Aroclor 1232	5,700	< 5,700 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	102%
Tetrachlorometaxylene	95.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 416
SAMPLE

Lab Sample ID: ID06B
LIMS ID: 05-9389
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 21:33
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.27 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.2
Percent Moisture: 74.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,500	< 1,500 U
53469-21-9	Aroclor 1242	1,500	< 1,500 U
12672-29-6	Aroclor 1248	1,500	< 1,500 U
11097-69-1	**Aroclor 1254**	**1,500**	**16,000 E**
11096-82-5	Aroclor 1260	3,000	< 3,000 Y
11104-28-2	Aroclor 1221	1,500	< 1,500 U
11141-16-5	Aroclor 1232	1,500	< 1,500 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	97.2%
Tetrachlorometaxylene	91.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 416
DILUTION

Lab Sample ID: ID06B
LIMS ID: 05-9389
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/14/05 10:35
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.27 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 3.00
Silica Gel: No
pH: 7.2
Percent Moisture: 74.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,400	< 4,400 U
53469-21-9	Aroclor 1242	4,400	< 4,400 U
12672-29-6	Aroclor 1248	4,400	< 4,400 U
11097-69-1	**Aroclor 1254**	**4,400**	**16,000**
11096-82-5	Aroclor 1260	4,400	< 4,400 U
11104-28-2	Aroclor 1221	4,400	< 4,400 U
11141-16-5	Aroclor 1232	4,400	< 4,400 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.0%
Tetrachlorometaxylene	87.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 418
SAMPLE

Lab Sample ID: ID06C
LIMS ID: 05-9390
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 21:50
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.18 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.0
Percent Moisture: 82.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	2,200	< 2,200 U
53469-21-9	Aroclor 1242	2,200	< 2,200 U
12672-29-6	Aroclor 1248	2,200	< 2,200 U
11097-69-1	**Aroclor 1254**	**2,200**	**4,000**
11096-82-5	Aroclor 1260	2,200	< 2,200 U
11104-28-2	Aroclor 1221	2,200	< 2,200 U
11141-16-5	Aroclor 1232	2,200	< 2,200 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	94.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 419
SAMPLE

Lab Sample ID: ID06D
LIMS ID: 05-9391
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 22:07
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.25 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.0
Percent Moisture: 75.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,600	< 1,600 U
53469-21-9	Aroclor 1242	1,600	< 1,600 U
12672-29-6	Aroclor 1248	1,600	< 1,600 U
11097-69-1	**Aroclor 1254**	**1,600**	**21,000 E**
11096-82-5	Aroclor 1260	3,200	< 3,200 Y
11104-28-2	Aroclor 1221	1,600	< 1,600 U
11141-16-5	Aroclor 1232	1,600	< 1,600 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	112%
Tetrachlorometaxylene	99.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 419
MATRIX SPIKE

Lab Sample ID: ID06D
LIMS ID: 05-9391
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 22:24
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.25 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.0
Percent Moisture: 75.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,600	---
53469-21-9	Aroclor 1242	1,600	< 1,600 U
12672-29-6	Aroclor 1248	1,600	< 1,600 U
11097-69-1	**Aroclor 1254**	**1,600**	**22,000 EP**
11096-82-5	Aroclor 1260	1,600	---
11104-28-2	Aroclor 1221	1,600	< 1,600 U
11141-16-5	Aroclor 1232	1,600	< 1,600 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.8%
Tetrachlorometaxylene	85.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 419
MATRIX SPIKE DUP

Lab Sample ID: ID06D
LIMS ID: 05-9391
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 22:41
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.24 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.0
Percent Moisture: 75.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	1,700	---
53469-21-9	Aroclor 1242	1,700	< 1,700 U
12672-29-6	Aroclor 1248	1,700	< 1,700 U
11097-69-1	**Aroclor 1254**	**1,700**	**19,000 EP**
11096-82-5	Aroclor 1260	1,700	---
11104-28-2	Aroclor 1221	1,700	< 1,700 U
11141-16-5	Aroclor 1232	1,700	< 1,700 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	99.0%
Tetrachlorometaxylene	91.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 419
DILUTION

Lab Sample ID: ID06D
LIMS ID: 05-9391
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted: 06/10/05
Date Analyzed: 06/14/05 10:52
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 0.25 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 3.00
Silica Gel: No
pH: 7.0
Percent Moisture: 75.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	4,800	< 4,800 U
53469-21-9	Aroclor 1242	4,800	< 4,800 U
12672-29-6	Aroclor 1248	4,800	< 4,800 U
11097-69-1	**Aroclor 1254**	**4,800**	**22,000**
11096-82-5	Aroclor 1260	4,800	< 4,800 U
11104-28-2	Aroclor 1221	4,800	< 4,800 U
11141-16-5	Aroclor 1232	4,800	< 4,800 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	113%
Tetrachlorometaxylene	104%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD MethodSW8082
Page 1 of 1

Sample ID: 419
MS/MSD

Lab Sample ID: ID06D
LIMS ID: 05-9391
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: 06/06/05
Date Received: 06/06/05

Date Extracted MS/MSD: 06/10/05

Date Analyzed MS: 06/13/05 22:24
MSD: 06/13/05 22:41
Instrument/Analyst MS: ECD5/PK
MSD: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount MS: 0.25 g-dry-wt
MSD: 0.24 g-dry-wt
Final Extract Volume MS: 4.0 mL
MSD: 4.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: No
pH: 7.0
Percent Moisture: 75.9%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 1600 U	8190	8000	102%	9130	8330	110%	10.9%
Aroclor 1260	< 3200 Y	9820	8000	123%	10000	8330	120%	1.8%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD MethodSW8082
Page 1 of 1

Sample ID: LCS-061005
LAB CONTROL

Lab Sample ID: LCS-061005
LIMS ID: 05-9388
Matrix: Solid
Data Release Authorized:
Reported: 06/15/05

QC Report No: ID06-The Boeing Company
Project: North Boeing Field Source Evaluatio
025082.093.091
Date Sampled: NA
Date Received: NA

Date Extracted: 06/10/05
Date Analyzed: 06/13/05 20:59
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes

Sample Amount: 12.0 g-dry-wt
Final Extract Volume: 4.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	142	167	85.0%
Aroclor 1260	159	167	95.2%

PCB Surrogate Recovery

Decachlorobiphenyl	83.8%
Tetrachlorometaxylene	91.5%

Results reported in µg/kg (ppb)

ANALYTICAL
RESOURCES
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ANALYST NOTES - Organic Extractions

ARI Job No: IDØ6 Client Name: The Boeing Company

Parameter: PCB Client Project: North Boeing Field Source Evaluation

3475 SOP Number(s) ☐ No Anomalies

List problems, corrective actions, and any other pertinent information:

Poured off standing water on all samples
Thick, black & sludgy A-D dm 6/7/05
~~turns Lil Solvent Red dm 6/7/05~~ dm 6/7/05
turns Extractions Solvent Red dm 6/7/05

Extraction
Analyst: _____ Date Extracted: _____

See Reverse Side for Additional Information

QA LIMs # _____
EXT LIMs # _____
Bid # PB010610A-01

9388
9391

Pest/PCB Wipe/Soil/Sediment
In House X /PSDDA _____
(3550B) Microtip X /Shakeout _____
(3550B) Macrotip _____
(3545A) ASE _____
KD X
Turbovap X

Client Name: The Boeing Company

ARI Job No(s): ID010

Extraction Requirements (ARI Lab ID)	Client Sample ID	Amount Extracted	GPC Aliquot #1 / #2	Sillica Gel (Pest) Aliquot	Silica Gel (PCB) Aliquot	Acid Clean (Y) N (REQ) 4mL	Sulfur Clean-up (REQ) 4mL	Final Effective Volume	Volume To Lab	Time Extracted 1154 Comments:
MB: 6-10-05 Id0610 mbs		12.00g.						4mL	1mL	
SB: 6-10-05 Id0610 sbs		12.00g.								
A	Checked	1.05g.								
B		1.04g.								
C		1.03g								
d		1.03g								
dms		1.03g								
dmsd		1.01g.								
6-10-05 Date/Analyst:	TA					NP 6/10/05				

Surrogate Amount: 80 uL
Concentration: 2 ug/mL
Added By: TA /Spk. Witness: [illegible]
ID: 1321-2

Spike Amount: 25 uL
Concentration: 80 ug/mL (1666)
Added By: TA /Spk. Witness: [illegible]
ID: 1322-2

1:1 DCM/Hex I.D.: NA
(80:20 Hex/Acetone) Reagent ID: E15B
(Hexane) Solvent Lot ID: I225
Wipe Lot ID: NA
Conc. H2So4 ID: I2205
3% or 0% Silica Gel I.D. NA /NA
Tetrabutyl Ammonium Sulfite Reagent I.D.: E115
Na2So4 ID: 5-26 #4
Neutral glasswool ID: 4/9#1 /

Ethyl Acetate Lot #: 309085

Data Reporting Qualifiers

Effective 12/28/04

Inorganic Data

U Indicates that the target analyte was not detected at the reported concentration

* Duplicate RPD is not within established control limits

B Reported value is less than the CRDL but ≥ the Reporting Limit

N Matrix Spike recovery not within established control limits

NA Not Applicable, analyte not spiked

H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U Indicates that the target analyte was not detected at the reported concentration

* Flagged value is not within established control limits

B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J Estimated concentration when the value is less than ARI's established reporting limits

D The spiked compound was not detected due to sample extract dilution

NR Spiked compound recovery is not reported due to chromatographic interference

E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

F Samples were frozen prior to particle size determination